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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/765,583	01/27/2004	Thomas L. Toth	GEMS8081.196	1715
7590 11/23/2005 Ziolkowski Patent Solutions Group, LLC 14135 North Cedarburg Road Mequon, WI 53097			EXAMINER KAO, CHIH CHENG G	
			ART UNIT 2882	PAPER NUMBER

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No.		Applicant(s)	
	10/765,583		TOTH ET AL.	
	Examiner		Art Unit	
	Chih-Cheng Glen Kao		2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 14-29 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12 and 14 is/are allowed.
- 6) ☒ Claim(s) 15-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 September 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 15, 16, 19-21, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toth (US Patent 5457724) in view of Zhou et al. (US Patent Application Publication 2002/0094064) and Li (US Patent 6459755).

2. Regarding claims 15 and 27, Toth discloses a system comprising a rotatable gantry (fig. 1, #12) having a bore centrally disposed therein (fig. 1, #11), a table moveable (fig. 2, #36) within the bore (fig. 1, #11) and configured to position a subject (fig. 1, #15) for tomographic data acquisition (abstract) within the bore, a high frequency electromagnetic energy projection source (fig. 1, #13) positioned within the rotatable gantry (fig. 1, #12) and configured to project high frequency electromagnetic energy toward the subject (fig. 1, #15), a detector array (fig. 1, #16) disposed within the rotatable gantry (fig. 1, #12) and configured to detect high frequency electromagnetic energy projected by the projection source (fig. 1, #13) and impinged on the subject (fig. 1, #15), and a computer (fig. 2, #26), along with determining a center of a subject (col. 3, lines 53-62), determining a value of mis-centering of the center of the subject within a medical imaging device (col. 4, lines 30-36), and adjusting a position or elevation of the subject

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within the imaging device to align the center with a reference position and compensate for the value of mis-centering (col. 4, lines 55-60).

However, Toth fails to specifically disclose a computer readable storage medium having stored thereon a computer program representing a set of instructions, which when executed by at least one processor or computer, causes the processor or computer to perform steps, or positioning relative to a centroid.

Li teaches a computer readable storage medium having stored thereon a computer program representing a set of instructions, which when executed by at least one processor or computer, causes the processor or computer to perform steps (claim 9). Zhou et al. teaches positioning relative to a centroid (paragraph 68).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the steps and system of Toth with a computer readable storage medium having a program for a computer as taught by Li, since broadly providing automatic means to replace manual activity, which has accomplished the same result, involves only routine skill in the art. One having ordinary skill in the art would be motivated to make such a modification for faster image processing.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Toth with the positioning relative to a centroid of Zhou et al., since one would be motivated to make such a modification to more easily ensure that the object is within the imaging zone (paragraph 68) as implied from Zhou et al.

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3. Regarding claim 16, Toth further discloses determining a distance of the center from an isocenter (col. 4, lines 35-36).

4. Regarding claims 19 and 20, Toth further discloses determining a distance of the center from an isocenter and geometrically determining an x-direction and y-direction centering error of the subject relative to a reference point defining a properly centered subject (col. 4, lines 35-36).

5. Regarding claim 21, Toth further discloses adjusting an elevation of the subject based on the value of mis-centering (col. 4, lines 58-59), which would necessarily be within the imaging device due to prior performance of scout scans (abstract).

6. Claims 17, 18, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toth, Zhou et al., and Li as applied to claims 15 and 27 above, and further in view of Lienard et al. (US Patent Application Publication 2003/0007603).

Toth as modified above suggests a method as recited above. Toth further discloses performing at least one scout scan of the subject (abstract), determining the center of the subject from the at least one scout scan (col. 3, lines 53-62), wherein the at least one scout scan includes at least one of a lateral scout scan and an anterior-posterior scout scan (fig. 4), and determining the center of the subject from at least two scout scans including at least one lateral scout scan and an anterior-posterior scout scan (fig. 4).

However, Toth fails to disclose scanning for determining a center of mass.

Lienard et al. teaches scanning for determining a center of mass (paragraph 17).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Toth as modified above with the scanning of Lienard et al., since one would be motivated to make such a modification to better estimate the distance of the object between components (paragraph 17) as implied from Lienard et al.

7. Claims 22 and 24-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Toth in view of Zhou et al. and Kendrick et al. (US Patent Application Publication 2003/0206614).

8. Regarding claim 22 and for purposes of being concise, Toth in view Zhou et al. suggests a method as recited above.

However, Toth fails to disclose automatically adjusting.

Kendrick et al. teaches automatically adjusting (paragraph 10).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Toth as modified above with the automatic adjusting of Kendrick et al., since one would be motivated to make such a modification to reduce human intervention (paragraph 10) as implied from Kendrick et al. and save time during a process.

It also would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Toth as modified above with automatic aligning since broadly providing automatic means to replace manual activity, which has accomplished the same result, involves only routine skill in the art. One would be motivated to make such a modification to save time during a process.

9. Regarding claim 24, Toth further discloses adjusting the elevation of the subject according to a difference between an actual elevation of the subject and a desired elevation of the subject (col. 4, lines 56-60).

10. Regarding claim 25, Toth as modified above suggests a method as recited above. Toth further discloses that mis-centering in a lateral direction will usually be minimal and not require repositioning of the patient (col. 4, lines 60-63).

However, Toth fails to specifically disclose adjusting a lateral position of the subject within the medical device.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Toth as modified above with adjusting a lateral position, which is explained with motivation as follows. Although Toth discloses that usually lateral repositioning is not required, there are obviously unusual situations that may occur, which would require repositioning in the lateral direction, such as a subject lying on the extreme side of the table. If this unusual situation occurs, it would have been obvious, to one having ordinary skill in the art, to incorporate the method as recited above with repositioning of the patient in the lateral direction, since one would be motivated to make such a modification for optimal images (col. 2, lines 1-2) as implied from Toth.

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11. Regarding claim 26, Toth further discloses the step of determining a center of the subject and adjusting at least one of a position of the subject to compensate for misalignment between the center of the subject and an isocenter (col. 4, lines 30-36 and 55-60).

12. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toth, Zhou et al., and Kendrick et al., as applied to claim 22 above, and further in view of Kobayashi (US Patent 5577095).

Toth as modified above suggests a method as recited above. Toth further discloses determining the center of the subject from at least one scout scan (fig. 4).

However, Toth fails to disclose determining elevation from a sensor assembly disposed approximate a scanning bay or medical imaging device.

Kobayashi teaches determining elevation from a sensor assembly (col. 9, lines 52-60) disposed approximate a scanning bay or medical imaging device (fig. 1).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the method of Toth as modified above with the determination of Kobayashi, since one would be motivated to make such a modification to measure height easier (col. 9, lines 52-60) as implied from Kobayashi.

13. Claim 29 is rejected under 35 U.S.C. 103(a) as being unpatentable over Toth, Zhou et al., and Li as applied to claim 27 above, and further in view of Kendrick et al.

Toth as modified above suggests a system as recited above. Toth further discloses determining a projection area (fig. 4).

However, Toth fails to specifically disclose determining an adjusted projection area from a position of the center after repositioning.

Kendrick et al. teaches adjusting, displaying, and repositioning (fig. 5, #535, 540, and 545).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Toth as modified above with the adjusting, displaying, and repositioning of Kendrick et al., since one would be motivated to make such a modification to make alignment more accurate (fig. 5) as implied from Kendrick et al.

It also would have been obvious, to one having ordinary skill in the art at the time the invention was made, to incorporate the system of Toth with the determining after repositioning, since merely repeating steps of an invention involves only routine skill in the art. One would be motivated to make such a modification to double-check the positioning for accuracy.

Allowable Subject Matter

14. Claims 1-12 and 14 contain allowable subject matter. The following is a statement of reasons for the indication of allowable subject matter.

Regarding claim 1, prior art fails to disclose or fairly suggest a method of centering a subject in a medical device including the steps of determining a center of mass of the subject from at least one scout scan and an elevational profile of the subject, and comparing the center of mass of the subject to a reference point, in combination with all the limitations in the claim. Claims 2-12 and 14 contain allowable subject matter by virtue of their dependency.

Response to Arguments

15. Applicant's arguments with respect to claims 22-26 have been considered but are moot in view of the new ground(s) of rejection. Applicant's arguments filed 9/9/05 have been fully considered but they are not persuasive.

Regarding claims 15 and 27, in response to Applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Applicants further argue that Zhou et al. does not teach or suggest determining a centroid. The Examiner disagrees. As seen in paragraph 68, Zhou et al. teaches positioning an object such that a centroid is centrally positioned. This would necessarily require determining a centroid in order to know where to position the centroid centrally. Therefore, Zhou et al. does teach or suggest determining a centroid.

Regarding claims 17, 18, and 28, in response to Applicants' argument that there is no suggestion to combine the references, the Examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. In this case, Toth in view of Zhou et al. and Li suggests the method except for obtaining the center via scanning. Lienard et al. further teaches obtaining the center via scanning. The combination of references makes obvious the suggested method with the scanning of Lienard et al. for obtaining the center. Again as recited above, one would be motivated to make such a modification to better estimate the distance of the object between components (paragraph 17) as implied from Lienard et al., which is certainly better than destructive ways of finding the center.

Regarding claim 29, in response to Applicants' argument that the references fail to show certain features of Applicants' invention, it is noted that the features upon which Applicants rely (i.e., the "sum of the attenuation values of the x-rays that intercept the patient, according to the adjusted elevation of the subject") are not recited in the rejected claim(s). Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims.

Furthermore with regards to claim 29, in response to Applicants' arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. Applicants argued that Kendrick et al. fails to teach or suggest determining an adjusted projection area (PA). The Examiner did not reject the claim by stating that Kendrick et al. taught determining an adjusted projection area (PA). The Examiner rejected the claim based on the combination of references making obvious the step of determining an adjusted projection area.

In conclusion, Applicants' arguments are not persuasive, and the claims remain rejected.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

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the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gk



**EDWARD J. GLICK
SUPERVISORY PATENT EXAMINER**

**TITLE: SYSTEM AND METHOD OF DETERMINING A CENTER OF MASS OF AN IMAGING SUBJECT
FOR X-RAY FLUX MANAGEMENT CONTROL**

INVENTOR(S): Toth et al.

S/N: 10/765,583

Replacement Sheet 1 of 1

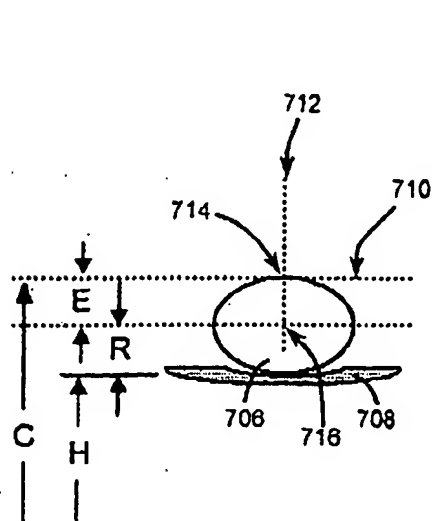


FIG. 18

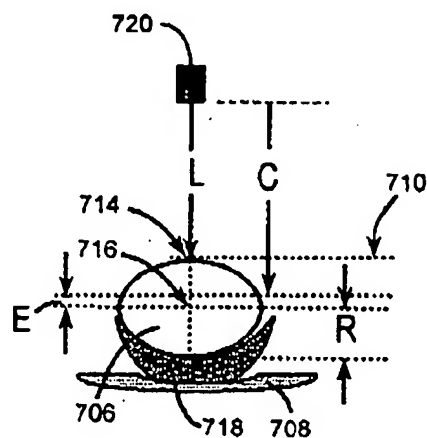


FIG. 19

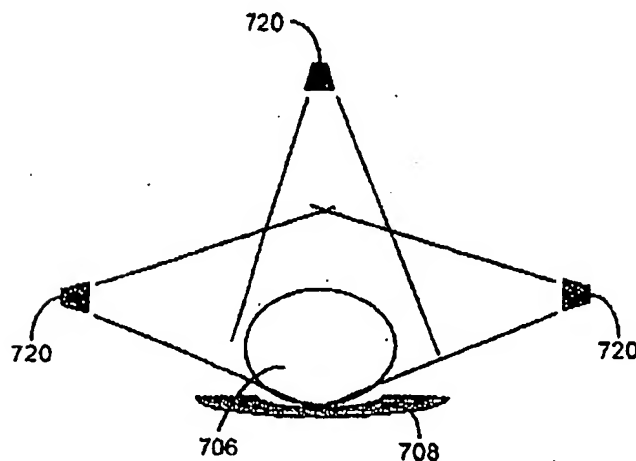


FIG. 20

Accepted
11/16/03